Animal Exposure and Febrile Illness in Thailand: Potential Reservoirs and Clues to Diagnosis

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Background: Recent outbreaks of pathogens such as SARS coronavirus, Nipah virus and H5N1 influenza highlight the importance of animals as reservoirs for human diseases. Knowledge of potential reservoirs is critical for both clinical diagnosis and for effective public health interventions.
Methods: Patients in a prospective study of febrile illness in rural Thailand were questioned about a variety of animal exposures. Acute and convalescent sera were tested in a blinded fashion for a significant antibody rise with MAT for leptospirosis, and ELISA for murine typhus, spotted fever group (SFG) *Rickettsia*, and other pathogens.
Results: Of the 278 patients tested to date, 27 had 4-fold rise to leptospirosis, 36 to murine typhus and 18 to SFG infection. Patients with leptospirosis were significantly more likely to report rodents in the area around their house (54% vs 35%, p=0.04) more often than those with other causes of fever. Seeing rodents in the house was significantly more common in those with murine typhus compared to those without (72% vs 47%, p=0.02). Cat ownership (14% vs 24%, p=0.16) tended to be reported less frequently in those with murine typhus. Rodent control programs were less likely to be present in the villages of those with leptospirosis (14% vs. 42%, p<0.01) but this was not the case for murine typhus (44% vs 38%, p=NS). All patients with SFG rickettsial infection owned animals compared to 81% of those with other febrile illnesses (p= 0.05).
Conclusions: As expected, presence of rodents in the environment was more common in patients with leptospirosis and murine typhus than in those with other febrile illnesses. Rodent control programs appeared to decrease the likelihood of leptospirosis, but not murine typhus. Further testing of domestic animals may identify specific reservoirs for SFG infection and ultimately identification of the *Rickettsia* species responsible for this disease in Thailand.

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